

CHARGE NUMBER: 2506
PROJECT TITLE: Botanical Investigations
PROJECT LEADER: Roger T. Bass
PERIOD COVERED: February 1-28, 1983
DATE OF REPORT: March 10, 1983

I. GENERAL

A. The roots of the ^{14}C tobacco plants from VdC chamber runs No. 3 and 4 have been completely air dried and cleaned resulting in the yields shown below. Specific activity determinations for this material are being made.

<u>VdC Run No. 4</u> <u>Variety</u>	<u>Plant No.</u>	<u>Root Yield (Dry Wt.)</u>
Ky. 10	1	34 gms.
Ky. 10	2	56
Ky. 10	3	42
Ky. 10	4	64
	Total	196

<u>VdC Run No. 3</u>		
S. C. 58	1	46
S. C. 58	2	40
S. C. 58	3	54
S. C. 58	4	34
	Total	174

B. A ten gram quantity of sieved Ky. Ref. 2R1 filler was sprayed with a 3ml. volume of duvatriediol solution. The DeVilbiss No. 15 atomizer was used for the application. After equilibration, a total of eight hand made cigarettes were prepared for use in smoke studies by Project 2501.

C. At the request of Project 1720 a quantity of C-319 tobacco leaves were flue-cured in the oven and then equilibrated for shredding. Another group of harvested leaves were sun dried on the Greenhouse bench for utilization in expansion studies. The air curing of several groups of leaf samples were also completed.

D. Artificial plant light intensity measurements were made and information provided for the optimum ratio and balance of fluorescent and incandescent light sources being utilized by Project 6902 in their incubator cabinet.

E. On 1 February the ^{14}C -nicotine VdC cigarette making operation was successfully completed on the new Hauni Baby making machine, under the supervision of the Radiation Safety Officer. In a short period of time we produced a total of about two thousand ^{14}C -nicotine labelled cigarettes to be utilized in VdC smoke

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studies. About one half of these were 85mm non-filter cigarettes and the other half were 65mm cigarettes to which we will attach "whistle through" cellulose acetate filters. Preliminary determinations on these cigarettes indicate an average weight and RTD as shown below.

	<u>65mm (w/filter)</u>	<u>85mm (no filter)</u>
Avg. Weight	0.97gm	1.24gm
Avg. RTD	2.86 in. H ₂ O	2.50 in. H ₂ O

This achievement, the successful preparation of these cigarettes, marks the culmination of planning, plant selection, tobacco production, ¹⁴C-nicotine isolation, and labelled nicotine application to filler, which all began over two years ago for the cooperative VdC study.

II. COOPERATIVE STUDIES

A. The 1982 Kentucky Burley Regional Farm Test tobacco variety display was attended in Lexington, Ky. at Penn Brothers Warehouse. The displayed tobaccos were evaluated in cooperation with Leaf Department personnel as to their physical characteristics as reflected in their suitability for PM use (or % graded as usable). For the Regional Farm Test, the two control varieties Ky. 14 and Bu. 37 were compared to the three experimental entries Coker 80-42E, Gr. 115, and Rogers 80-63-14. The percent graded by PM for each entry was as follows: Ky. 14 (80%), Bu. 37 (81%), Coker 80-42E (96%), Gr. 115 (80%), and Rogers 80-63-14 (74%). For the Regional Small Plot Test at the Spindletop, Ky. location all of these same five entries showed excellent appearance with 100% graded usable for each of them. Burley tobacco from several other tests, including the Sucker Control Test, and the Potassium Source Test (KCl and K₂SO₄ applied in the spring and fall at 100, 200, 300, and 400 pounds per acre rate) were also evaluated.

B. Cigarette samples from 1982 Burley Tobacco Regional Farm Test were received and evaluated by the Subjective Screening Panel. The experimental entries (Coker 80-42E, Gr. 115, and Rogers 80-63-14) were compared to the control varieties Ky. 14 and Bu. 37 and were found to be acceptable in burley smoke flavor characteristics. This information was reported to the Variety Evaluation Committee.

III. GREENHOUSE

A. Because of the interest in cis-abienol, a leaf surface lipid, we have obtained seed of the Red Russian variety and some plants will be grown for use by L. Weissbecker.

B. Fresh green leaves have been provided as requested from plants of C-319, N. sylvestris and N. tomentosiformis for cis-abienol determinations by Project 2525. Various other tobacco material samples have been supplied as requested for Project Nos. 1720, 1730, 1754, 2525, 2501, and 6902.

C. Greenhouse maintenance includes the replacement of several glass panes and the installation of new Stuppy watering tips on the automatic watering system. These tips are an improvement over the original ones, which often stopped up.

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D. The normal seeding and transplanting activities have been completed, including Wisconsin 38, Ky. 14, Coker 319, and Oriental varieties.

References:

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G. Newell, N. B. 7295

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